

**Indiana University-Purdue University
Indianapolis**
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, September 12, 2023
Zoom Meeting: Meeting ID: 845 0989 4694

Speaker: **Xianzheng Huang**
Department of Statistics, University of South Carolina

Title: **Nonparametric Regression for Circular Responses with Error-in-Covariate**

Abstract:

We consider regression analysis of a circular response with an error-prone linear covariate. Starting from an existing estimator of the circular regression function that assumes error-free covariate, we propose three approaches to revise this estimator, leading to three nonparametric estimators for the circular regression function accounting for measurement error. Although having different rationales behind them, all proposed estimators relate to some integral transform connecting to a deconvoluting kernel. Besides adopting an existing method to select bandwidths these estimators depend on, we develop a new bandwidth selection method that is more computationally efficient. We demonstrate the efficacy of these new estimators and their relative strengths through thorough investigation of their asymptotic properties, and also via extensive empirical study of their finite-sample performance.

Bio:

Dr. Xianzheng Huang received her Ph.d. in Statistics from North Carolina State University in 2006, following which she joined the Department of Statistics at the University of South Carolina. Measurement error problems have been her longstanding research interest, which has motivated her research endeavors in latent variable models and network analysis in the presence of measurement error. Parametric treatments of these problems are especially vulnerable to model misspecification. She is thus inspired to develop nonparametric methods for regression analysis of unconventional data, such as non-Gaussian heavy-tailed data and non-Euclidean directional data.